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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,824	07/10/2003	Hans-Peter Manner	SMB-PT082 (P 03 305 M US)	2688

3624 7590 05/17/2006

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EXAMINER	
EWALD, MARIA VERONICA	
ART UNIT	**PAPER NUMBER**
1722	

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/616,824	MANNER, HANS-PETER	
	Examiner	Art Unit	
	Maria Veronica D. Ewald	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 9-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 9-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 recites the limitation "the lateral outlet openings." There is insufficient antecedent basis for this limitation in the claim, since prior mention of the opening is only claimed as "outlet opening" *not* "lateral outlet opening" and thus, Examiner is interpreting this feature as "outlet opening" only. Appropriate correction and/or clarification is required.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 – 3, 5 – 7, 9 – 10, 14 – 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Babin (U.S. 6,162,044). With respect to claim 1, Babin teaches an injection nozzle (item 12 – figure 2) for plastic comprising at least two outlet openings disposed substantially opposite one another along a common axis (item 104 – figure 2)

in an end region of the injection molding nozzle, directed towards different sides of the nozzle (column 2, lines 63 – 65), for discharging to different sprue openings (item 144 – figure 2), each of the outlet openings including a needle closure with a closure needle adjustable in a direction of one of the outlet openings (item 114 – figure 2; column 3, lines 30 – 31) ; a common drive element for displacing the closure needles in a closing direction, the drive element being a displacement member movable between ends of the closure needles and the drive element including a cross section that is at least one of a cone, conical, tapered, a cam disk and an eccentric disk (column 3, lines 1 – 10) and a feed channel for transporting plastic to the outlet openings (item 50 – figure 2).

With respect to claims 2 and 3, Babin further teaches that the feed channel (item 50 – figure 2) comprises a separate feed channel (item 118 – figure 2) for the plastic for each of the lateral outlet openings provided with a closure needle and the feed channels are arranged outside a middle area of the injection molding nozzle (column 3, lines 40 – 42). The reference further teaches that the feed channels for the plastic entering the outlet openings are before mouths thereof, near ends of the individual closure needles (items 114, and 118 – figure 2).

With respect to claims 5 – 7, Babin teaches that the closure needles of the outlet openings have a common drive for displacement into the closing position (column 2, lines 66 – 67; column 3, lines 1 – 9). In addition, the reference teaches that the closure needles in a closing direction, have a cross section enlargement or a shoulder located before the feed channel entry (column 3, lines 30 – 31) for the plastic as an action surface for injection molding pressure for opening the closure needle, and the drive

acting in the closing direction can be disconnected and/or overcome during opening of the respective closure needle (column 3, lines 5 – 10). Furthermore, Babin teaches that the injection nozzle has compression springs or displacement means engaging mechanically on the closure needles and are provided for displacing the closure needles into the closing position and are located at ends remote from the outlet opening.

With respect to claims 9 – 10, Babin teaches that the injection nozzle is further comprised of a push/pull rod displaceable in an axial direction is located centrally within the injection molding nozzle or for rotating a cam disk or eccentric disk, a rotary rod is provided centrally in the injection molding nozzle (item 62 – figure 1; column 3, lines 3 – 5). Furthermore, the reference teaches that the drive element engaging the closure needles is coupled and connected with the closure needles such that one movement serves for closing and an opposite movement serves for pulling back the closure needles into an opening position (column 3, lines 1 – 9).

With respect to claims 14 – 18, Babin teaches that a rod, arranged in a center of the nozzle housing (14) for a common drive of the closure needles is provided or coupled with a rotary or axial drive (column 2, lines 66 – 67; column 3, lines 1 – 9). The reference further teaches that the outlet openings and the closure needles displaceable therein are arranged in bushings inserted into a housing of the injection molding nozzle (item 100 – figure 2; column 3, lines 18 – 22). In addition, the nozzle is further comprised of at least one retaining cap removably threadably secured to an outside of the injection molding nozzle which retains at least one of the closure needles, the

retaining cap including a mouth of the outlet opening (item 124 – figure 2; column 4, lines 4 – 10); and a bushing which receives the closure needles in the nozzle body (item 100 – figure 2; column 3, lines 18 – 20, 33 – 35) and at least one of the closure needles includes a shoulder or a cross section enlargement which limits movement of the at least one of the closure needles in an axial direction (column 3, lines 44 – 45, 53 – 57), Furthermore, Babin teaches that injection molding nozzle has more than two outlet openings with closure needles displaceable therein (column 2, lines 63 – 65) which are arranged on one nozzle housing (column 2, lines 64 – 65) and are movable in the closing direction with the same drive element (column 2, lines 66 – 67; column 3, lines 1 – 3).

With respect to claims 19 – 22, Babin teaches that the injection molding nozzle is comprised of first and second openings in an end region of the injection molding nozzle directed towards opposite sides of the nozzle for discharging to different sprue openings (item 144 – figure 2; column 2, lines 63 – 65); first and second closure needles (item 114 – figure 2); the first closure needle positioned in the first opening and the second closure needle positioned in the second opening (items 112, 114 – figure 2); a common drive element for displacing the first and second closure needles in a closing direction, the drive element being a displacement member movable between ends of the closure needles and slideably connected to an end of each of the first and second closure needles (column 3, lines 1 – 10); and a feed channel for transporting plastic to the outlet openings (item 50 – figure 2); and wherein a push/pull rod is connected to the displacement member for actuating the displacement member (item 62 – figure 1;

column 3, lines 3 – 5); and wherein a rotary rod is connected to the displacement member for actuating the displacement member (item 62 – figure 1; column 3, lines 3 – 5); and furthermore, Babin teaches an injection molding nozzle with first and second openings (item 64 – figure 2) in an end region of the injection molding nozzle for discharging to different sprue openings substantially along a common axis; first and second closure needles (items 112, 114 – figure 2), the first closure needle positioned in the first opening and the second closure needle positioned in the second opening; a common drive element for displacing the first and second closure needles in a closing direction, the drive element being a displacement member movable between ends of the closure needles and slideably connected to each of the first and second closure needles (column 3, lines 1 – 10); and a feed channel for transporting plastic to the outlet openings (item 50 – figure 2).

Claims 1 – 5, 9 – 15, 19 – 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Guenther (EP 0447573 A1). Guenther teaches an injection nozzle (item 26 – figure 1) for plastic comprising at least two outlet openings disposed substantially opposite one another along a common axis (item 24 – figure 1; page 10) in an end region of the injection molding nozzle, directed towards different sides of the nozzle (item 24 – figure 1), for discharging to different sprue openings (item 46 – figure 1), each of the outlet openings including a needle closure with a closure needle adjustable in a direction of one of the outlet openings (item 50 – figure 3; page 11) ; a common drive element for displacing the closure needles in a closing direction, the drive element

being a displacement member movable between ends of the closure needles and the drive element including a cross section that is at least one of a cone, conical, tapered, a cam disk and an eccentric disk (page 14) and a feed channel for transporting plastic to the outlet openings (item 22 – figure 1).

With respect to claims 2 – 3, Guenther further teaches that the feed channel comprises a separate feed channel for the plastic for each of the outlet openings provided with a closure needle and the feed channels are arranged outside a middle area of the injection molding nozzle (item 24 – figure 1); wherein the feed channels for the plastic enter the outlet openings before mouths thereof, near ends of the individual closure needles (figure 1).

With respect to claims 4 – 5, Guenther teaches the outlet openings and the closure needles displaceable into them are arranged approximately radially and generally in one plane extending perpendicularly to a longitudinal mid-axis of the injection molding nozzle (figure 1); wherein the closure needles of the outlet openings have a common drive for displacement into the closing position (page 10 – 11).

With respect to claims 9 – 15, the reference also teaches that wherein for displacing a conically-shaped or cone displacement member, a push/pull rod displaceable in an axial direction is located centrally within the injection molding nozzle, or for rotating a cam disk or eccentric disk, a rotary rod is provided centrally in the injection molding nozzle (figures 1 and 3; page 10 – 11, 14); wherein a drive element engaging the closure needles is coupled and connected with the closure needles such that one movement serves for closing and an opposite movement serves for pulling

back the closure needles into an opening position (page 11); wherein there is a housing that is divided perpendicularly to the feed channels for the plastic and has a thermal compensation gap in the region of the division (item 34 – figure 1; page 9); wherein the thermal compensation gap on the housing of the injection molding nozzle is sealed by an overlap at least in a region of the feed channels for the plastic (item 34, 36 – figure 1; page 9); wherein the overlap for sealing the thermal compensation gap in the region of the feed channels is formed by a sliding sleeve or a respective sliding sleeve arranged on an inside or outside of the feed channel (page 9); wherein a rod in a center of the nozzle housing for a common drive of the closure needles is provided or coupled with a rotary or axial drive (page 14); wherein the outlet openings and the closure needles displaceable therein are arranged in bushings inserted into a housing of the injection molding nozzle (item 38 – figure 1; page 10).

With respect to claims 19 – 22, Guenther further teaches teaches an injection nozzle for plastic comprising first and second openings in an end region of the injection molding nozzle directed towards opposite sides of the nozzle for discharging to different sprue openings (item 46 – figure 1); first and second closure needles; the first closure needle positioned in the first opening and the second closure needle positioned in the second opening (item 50 – figures 1 and 3), a common drive element for displacing the first and second closure needles in a closing direction, the drive element being a displacement member movable between ends of the closure needles and slideably connected to an end of each of the first and second closure needles (item 50 – figure 1; pages 9 – 10); and a feed channel for transporting plastic to the outlet openings (item

22 – figure 1); wherein there is a push/pull rod connected to the displacement member for actuating the displacement member (pages 9 – 10, 14) and wherein there is a rotary rod connected to the displacement member for actuating the displacement member (pages 9 – 10, 14).

Furthermore, with respect to claim 22, Guenther teaches an injection molding nozzle with first and second openings in an end region of the injection molding nozzle for discharging to different sprue openings substantially along a common axis (figure 1); first and second closure needles (item 50 – figures 1 and 3; pages 9 – 10), the first closure needle positioned in the first opening and the second closure needle positioned in the second opening (pages 9 – 10); a common drive element for displacing the first and second closure needles in a closing direction, the drive element being a displacement member movable between ends of the closure needles and slideably connected to each of the first and second closure needles (item 50 – figures 1 and 3; pages 9 – 10, 14); and a feed channel for transporting plastic to the outlet openings (item 22 – figure 1).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Babin in view of Halbach (U.S. 2,471,683). Babin teaches the characteristics previously described but does not teach that the outlet openings are arranged radially.

In an injection molding apparatus with improved multiple nozzles, Halbach teaches that there is a die plate with a plurality of suitably-spaced nozzle-receiving apertures (column 2, lines 41 – 42). There is a single source or central injection passage for supplying molten material under pressure and has pivotally connected or swiveled to it, a head, having laterally extending branches and provided with integral nozzles and extending at right angles thereto through the apertures (column 3, lines 5 – 10). This reads on the Applicant's claim that the outlet openings are arranged approximately radially and generally in one plane extending perpendicularly to a longitudinal mid-axis of the injection molding nozzle. Halbach further teaches that the branched configuration has the advantages of enabling the mold to be filled more quickly, completely and uniformly, thus, producing a product with greater uniformity (column 1, lines 14 – 18). In addition, the reference teaches that the branched configuration minimizes heat loss and maintains fluidity of the molten material (column 2, lines 24, 33 – 35).

It would have been obvious at the time of the Applicant's invention to one of ordinary skill in the art to modify the injection molding apparatus of Babin with the branched passageways of Halbach for the purpose of filling the mold quickly while at the same time maintaining the fluidity of the molten material and producing a more uniform product.

Claims 11 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babin in view of Anderson (U.S. 4,662,837). Babin teaches the characteristics previously described but does not teach that the injection nozzle have a thermal gap.

In an injection molding apparatus, Anderson teaches a die assembly with an injection nozzle for delivering molten resin through the die cavity (column 2, lines 36 – 39). Molten plastic material travels through an injection conduit (item 11 – figure 1) and branches at right angles into a main manifold channel (item 13 – figure 1) and then to injection nozzles (item 16 – figure 1; column 3, lines 51 – 53). Anderson further teaches that there is a gap (item 43 – figure 5) into which thermal expansion of the nozzle can occur (column 4, lines 48 – 49). This expansion gap exists between the second component and the nozzle (column 5, lines 18 – 19). This reads on the Applicant's claim that the injection molding nozzle be further comprised of a thermal compensation gap in the region of the housing division and is sealed by an overlap at least in a region of the feed channels. The reference also teaches that the overlap is formed by sliding sleeves or a respective sliding sleeve arranged on an inside or outside of the feed channel (item 40 – figure 5; column 5, lines 37 – 42).

It would have been obvious at the time of the Applicant's invention to one of ordinary skill in the art to modify the injection molding apparatus of Babin with the expansion gap of Anderson for the purpose of providing space for the nozzle to expand which occurs as the assembly reaches the operating temperature (column 5, lines 28 – 29).

References of Interest

16. Nakanishi (U.S. 6,755,641) and Crandell (U.S. 4,304,544) are cited of interest to show the state of the art.

Response to Arguments

17. Applicant's arguments with respect to claims 1, 19 and 22 have been considered but are not persuasive. The reference of Babin has again been cited; however, the fully translated reference of Guenther has also been cited to address further claims 1, 19 and 22.

Applicant has argued that the reference of Babin fails to show two outlet openings disposed (or placed) substantially opposite one another along (or close to) a common axis and fails to further show a common drive element including a cross section that is at least one of a cone, conical, tapered a cam disk and an eccentric disk. However, Examiner disagrees. Babin shows two openings (item 146 – figure 2; figure 4) which are substantially opposite one another, one each on the left and right sides of a central channel, *such openings at their ends, nearest the mold cavities* (item 68 – figure 20), *placed along a common axis (i.e., the horizontal axis)*. Furthermore, the common drive element is the piston (item 72 – figure 1), which tapers from its larger head to the smaller elongated portion, and thus, is of a tapered cross-section. In addition, *it is movable between the ends of the needles, such ends nearest the piston, at the inlet end of the melt flow*. Therefore, the reference of Babin still reads on claim 1.

In addition, with respect to Applicant's amendment of claim 19, the first and second openings of Babin are directed towards opposite sides of the nozzle (one each on the left and right sides of a central channel – left and right being opposite one another or being on opposite sides of the nozzle). Therefore, the reference of Babin still reads on claim 1.

With respect to Applicant's amendment of claim 22, the sprue openings of Babin lie substantially along a common axis (i.e., the horizontal axis) and thus, the reference of Babin still reads on claim 22.

In addition, Applicant argued in the response to arguments, dated October 6, 2005, that Babin teaches openings on a single side of a mold apparatus; *however, this is not the case, since the apparatus of Babin feeds two different cavities, such cavities lying on opposite sides of each other, and thus, the nozzle of Babin, with its two different sprue openings feeds two different sides of a mold apparatus. Furthermore, according to the Applicant's specification, the opposed sprue openings allows the filling of different molds (paragraph 0006), which though not claimed, is met by the apparatus of Babin.*

In addition, the apparatus of Guenther shows radially disposed openings, of which each can have a stopper needle (item 50 – figure 3), such a stopper needle able to move within the side channels. Furthermore, the melt flow can move through the central channel and at least also through the side channels into the inlet cone and thereby into the molding cavity (pages 10 – 11). Applicant argued that Guenther does not teach displaceable members. Applicant correctly argued that the plastic flow can

proceed vertically down into the main channel and is steered to the side openings by the base (item 19 – figure 1) and through the annular gap (item 68 – figure 1), into the mold cavity (page 10); however, Guenther also states that the extension piece of the nozzle also include side channels (item 24 – figure 1). In such cases, "the material to be processed flows in the injection molding process at least through the side channels into the inlet cone and thereby into the molding cavity (Guenther, pages 9 – 10)." The reference further states that figures 3 and 4 show a stopper needle (item 50 – figures 3 and 4) *which can be moved lengthwise* in the side channel. The stopper needle, then, forms the core, the lower end which ends with a cone and thus, when retracted, material flows passed it and into the annular gap, into the molding cavity (page 10). Therefore, plastic material can flow into the side channels and into the molding cavity, such flow can be stopped from entering or allowed to enter the mold cavity by forward or backward movement of the stopper needle. In addition, Guenther states that a stopper needle can also be placed in the main channel as well as the side channels, the main needle, thereby, acting as the common displacement member (page 14).

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Veronica D. Ewald whose telephone number is 571-272-8519. The examiner can normally be reached on M-F, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MVE

JOSEPH S. DEL SOLE
PRIMARY EXAMINER
5/15/06